

Appln. No.: 09/963,324
Amendment Dated January 23, 2007
Reply to Office Action October 23, 2006

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Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) A remote control system for translating an utterance of an operator to a control parameter of an electronic device, comprising:

a remote control unit, including,

- i. an audio input for receiving the utterance;
- ii. an analog to digital converter for digitizing the utterance;
- iii. a codec for compressing the digitized utterance directly; and
- iv. a transmitter operably linked to the audio input for providing a transmission signal corresponding to the compressed utterance;
- v. an audio transducer for providing audio information to the operator; and
- vi. a receiver for receiving feedback signals, the feedback signals representing items in a control menu for controlling the electronic device, the receiver operably linked to the audio transducer for providing audio prompts, corresponding to the control menu items, to the operator;

wherein the audio input is responsive to a further utterance representing one of the menu items;

a relay station, separate from the remote control unit and electronic device, responsive to the transmission signal, the relay station including,

- i. a receiver for recovering the compressed utterance from the transmission signal;

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- ii. A further codec for decompressing the compressed utterance to provide audio signals representing the utterance;
- iii. a speech recognition module for translating the audio signals into a sequence of words;
- iv. a memory for translating the sequence of words into the control parameter;

wherein the control parameter is provided by the relay station to the electronic device enabling hands-free remote control of the electronic device.

2. (Original) The remote control system of claim 1, wherein the remote control unit is an operator headset having a microphone coupled to the audio input of the remote control unit.

3. (Original) The remote control system of claim 1, wherein the electronic device is operably linked to the relay station to receive the control parameter.

4. (Previously Presented) The remote control system of claim 1, further comprising:

a display device, coupled to the electronic device for displaying a control menu;

wherein the sequence of words representing the utterance are translated by the relay unit into a menu navigation control parameter that causes the electronic device to navigate the displayed control menu.

5. (Original) The remote control system of claim 4, wherein the navigation of the menu is displayed on the display device in response to the electronic device receiving the menu navigation control parameter.

6. (Original) The remote control system of claim 4, wherein the received navigation control parameter is displayed on the display device.

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7. (Original) The remote control system of claim 1, wherein the relay station further comprises:

a transmitter for providing the control parameter to a remote control input port of the electronic device.

8. (Original) The remote control system of claim 7, wherein the remote control unit further comprises:

a receiver for receiving transmissions from the relay station.

9. (Cancelled)

10. (Currently Amended) A remote control system for translating an utterance of an operator to a control parameter of an electronic device, comprising:

a remote control unit, including,

- i. an audio input for receiving the utterance; and
- ii. a transmitter operably linked to the audio input for providing a transmission signal corresponding to the utterance;
- iii. a receiver for receiving transmissions from the relay station, ~~the~~ the receiver of the remote control unit being configured to receive menu data from the transmitter of the relay unit, the menu data representing items in a control menu for controlling the electronic device; and

wherein the transmitter of the remote control unit is configured to provide transmission signals to the operator representing further utterances for corresponding to the control menu items selecting a menu option; and the audio input is responsive to a further utterance representing one of the menu items; and

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a relay station, separate from the remote control unit and electronic device, responsive to the transmission signal, the relay station including,

- i. a receiver for recovering audio signals representing the utterance from the transmission signal;
- v. a speech recognition module for translating the audio signals into a sequence of words;
- vi. a memory for translating the sequence of words into the control parameter;
- vii a transmitter for providing the control parameter to a remote control input port of the electronic device enabling hands-free remote control of the electronic device; and
- viii a communications transceiver configured to allow a user to contact a remotely located party, wherein the receiver and transmitter of the remote control unit are configured to receive signals from the communications transceiver and to provide signals to the communications transceiver to utilize the communication transceiver of the relay unit to communicate with the remotely located party.

11. (Original) The remote control system of claim 10, wherein the remote control unit and the relay unit are configured to provide voice communication between the remotely located party and the operator.

12. (Original) The remote control system of claim 11, wherein the relay unit is operably linked to a telecommunication line and signals corresponding to the voice communication are transferred between the relay unit and the remotely located party over the telecommunication line.

13. (Currently Amended) A remote control system for translating utterances of an operator to control parameters for a plurality of electronic devices, comprising:

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a remote control unit, including,

- I. an audio input which receives utterances;
- II. an analog to digital converter for digitizing the utterance;
- III. a codec for compressing the digitized utterances directly; and
- IV. a transmitter operably linked to the audio input to provide transmission signals corresponding to the compressed utterances;
- V. an audio transducer for providing audio information to the operator; and
- VI. a receiver for receiving feedback signals, the feedback signals representing items in a control menu for controlling the electronic device, the receiver operably linked to the audio transducer for providing audio prompts, corresponding to the control menu items, to the operator;

wherein the audio input is responsive to a further utterance representing one of the menu items;

a relay station, separate from the remote control unit and the electronic device, responsive to the transmission signals, the relay station including,

- i. a receiver which recovers the compressed utterances from the transmission signals;
- ii. a further codec for decompressing the compressed utterances to provide audio signals representing the utterances;
- iii. a speech recognition module which translates the audio signals into words

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- iv. a memory including a plurality of look-up tables each of which translates the translated words into the control parameters for a respective one of the plurality of devices; and
- v. a processor which selects one of the look-up tables to be used to generate the control parameters responsive to the translated words;
- vi. a transmitter which provides the control parameters from the selected look-up table to the respective electronic device;

whereby hands-free remote control of the plurality of electronic devices is enabled.

14. (Previously Presented) A remote control system according to claim 13, wherein:

the speech recognition module includes a protocol, responsive to a portion of the decompressed utterance for providing a command to the processor to select the one of the look-up tables; and

the processor is configured to receive the command to select the one of the plurality of look-up tables to allow use of the one of the look-up tables in controlling the corresponding device.

15. (Canceled).

16. (Currently Amended) A remote control system for translating an utterance of an operator to a control parameter of an electronic device, comprising:

a remote control unit, including,

- i. a microphone for receiving the utterance;
- ii. an audio transducer for providing audio information to the operator;

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- iii. an analog to digital converter for digitizing the utterance;
- iv. a codec for compressing the digitized utterance directly;
- v. a transmitter operably linked to the microphone for providing a transmission signal corresponding to the compressed utterance;
- vi. a receiver for receiving responsive to feedback signals, the feedback signals representing items in a control menu for controlling the electronic device, the receiver operably linked to the audio transducer for providing audio prompts, corresponding to the control menu items, to the operator;

wherein the audio input is responsive to a further utterance representing one of the menu items; and operably linked to the audio transducer for providing audio prompts to the operator

a relay station, separate from the remote control unit and the electronic device, responsive to the transmission signal, the relay station including,

- i. a receiver for recovering the compressed utterance from the transmission signal and for receiving feedback signals from the electronic device,
- ii. a further codec for decompressing the compressed utterance;
- iii. a speech recognition module for translating the decompressed utterance of the operator into the control parameter;
- iv. means for transmitting the control parameter to the electronic device, and for transmitting the feedback signal to the receiver of the remote control unit; and

wherein the control parameter is provided by the relay station to an electronic device and the electronic device provides the feedback signals for prompting an operator of the

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remote control unit to select one of a plurality of menu options, enabling hands-free remote control of the electronic device.

17. (Currently Amended) A method of translating an utterance of an operator to a control parameter of an electronic device, comprising:

digitizing the utterance;

compressing the digitized utterance directly;

converting the compressed digitized utterance into a modulated transmission signal;

receiving the transmission signal at a relay unit from a remote control unit, the relay unit being separate from the remote control unit and the electronic device;

recovering the compressed utterance from the modulated transmission signal;

decompressing the compressed utterance to provide audio signals representing the utterance;

processing the audio signals to recognize the words included in the utterance;
and

translating the recognized words into the control parameter,

providing the control parameter from the relay station to the electronic device
enabling hands-free remote control of the electronic device; and

receiving feedback signals at the remote control unit, the feedback signals representing items in a control menu for controlling the electronic device;

providing audio prompts, corresponding to the control menu items, to the operator;

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receiving a further utterance representing one of the menu items.

18. (Currently Amended) A method of translating an utterance of an operator to a control parameter and receiving a feedback signal from a electronic device in response to the control parameter for prompting the operator of a remote control system to select from a plurality of available control parameters, comprising:

digitizing the utterance;

compressing the digitized utterance directly;

converting the compressed digitized utterance into a modulated transmission signal;

receiving the transmission signal at a relay unit the relay unit being separate from the remote control unit and the electronic device;

recovering the compressed utterance from the modulated transmission signal;

decompressing the compressed utterance to provide audio signals representing the utterance;

processing the audio signals to recognize words included in the utterance;

translating the recognized words into a control parameter for the electronic device;

transmitting the control parameter from the relay unit to the electronic device;

receiving a feedback signal from the electronic device at the relay unit, the feedback signals representing items in a control menu for controlling the electronic device;

designating an utterance menu command corresponding to the to the control menu items feedback signal;

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transmitting a signal representing the utterance menu command from the relay unit to the remote control unit; and

providing the signal representing the utterance menu command as an audio output signal of the remote control unit,

whereby the utterance menu command prompts the operator of the remote control unit to select one of a plurality of menu options for the electronic device.